Extension Folder 22

Revised March 1939

IMPROVED VARIETIES OF FARM CROPS

Varieties Recommended for Minnesota by the Minnesota Experiment Station

A Field of Minrus Oats, Fillmore County

UNIVERSITY OF MINNESOTA

AGRICULTURAL EXTENSION DIVISION

THE list of recommended varieties for Minnesota has the joint approval of agronomists, plant breeders, and plant pathologists of the central experiment station at St. Paul and of the superintendents and agronomists of the various branch stations at Waseca, Morris, Crookston, Grand Rapids, and Duluth. A variety must have been tested in experimental plots for at least three years to be eligible for recommendation. The basis of recommendation is satisfactory performance in competitive trials when compared with standard varieties. These tests are conducted at the central and branch stations, in cooperative trials on farms, and, in addition, comparative trials of reaction to disease are conducted in specially prepared disease nurseries at the central station. Varieties introduced from outside the state are given the same careful trial as those developed in Minnesota.

The list is followed by a statement of the important characters of each recommended variety and its origin and regional adaptation. A brief statement of varieties that are not recommended is also given.

VARIETIES RECOMMENDED FOR MINNESOTA

Southern Minnesota—approximately all territory south of an east and west line passing through St. Paul.

Central and Northern Minnesota—territory north of line running east and west through St. Paul.

WHEAT

Bread varieties

For Southern Minnesota:
Spring: Thatcher, Minn. No. 2303.
Winter: Minturki, Minn. No. 1507.

For Central and Northern Minnesota:
Spring: Thatcher, Minn. No. 2303.

Durum varieties

For Central and Northern Minnesota:
Mindum, Minn. No. 470.

OATS

For Southern Minnesota:
Early Maturing: Gopher, Minn. No. 674; Iogold, Minn. Acc. No. 711*; S. Dak. Hull-less 165, Minn. Acc. No. 741.
Mid-early maturing: Minrus, Minn. No. 693.
Medium maturing: Rusota, N. Dak. No. 20014, Minn. Acc. No. 708.

* Accession number signifies that the variety referred to was originated at some other experiment station but has been tested in Minnesota and found desirable for use in the state.

For Central and Northern Minnesota:

Early Maturing: Gopher, Minn. No. 674; Iogold, Minn. Acc. No. 711; S. Dak. Hull-less 165, Minn. Acc. No. 741.

Mid-early maturing: Minrus, Minn. No. 693.

Medium maturing: Anthony, Minn. No. 686; Rusota, N. Dak. No. 20014, Minn. Acc. No. 708.

BARLEY

For all sections:

For malting and feed:

Smooth awned: Wisconsin 38, Minn. Acc. No. 529; Velvet, Minn. No. 447.

Rough awned: Improved Manchuria, Minn. No. 184; Peatland, Minn. No. 452.

For feed purposes only:

Smooth awned: Glabron, Minn. No. 445.

RYE

For all sections:

Dakold, N. Dak. No. 959, Minn. Acc. No. 93.

For Southern Minnesota:

Rosen, Minn. Acc. No. 82.

FLAX

For all sections:

Redwing, Minn. No. 188.

For Red River Valley:

Bison, Minn. Acc. No. 199; Buda, Minn. Acc. No. 194.

FIELD CORN

Southern section:

Hybrids: Minhybrid 301, Minhybrid 403.

Open-pollinated varieties: Silver King, Murdock, Golden Jewel, Rustler, Minn. No. 13, and Golden King.

For early hogging-off: Minhybrid 401.

Central section:

Hybrids: Minhybrid 401, Minhybrid 402.

Open-pollinated varieties: Minn. No. 13, Rustler, Golden King.

Northwestern and North Central section:

For ear corn production: Northern-grown strains as follows:

Dent varieties: Northwestern Dent, Crookston strain; Minn. No. 13, early-maturing adapted strains such as Haney.

Flint varieties: Dakota White, Gehu, Pearl, and Rainbow.

For silage production: Minn. No. 13 and Northwestern Dent. Minhybrid 402.

Northeastern section:

For ear corn production: Earliest flints—Dakota White, Pearl, Gehu.

For silage production: Northwestern Dent and early Minn. No. 13.

In the Lake Superior region sunflowers have given better results than corn for silage.

SWEET CORN

Southern section:

Hybrid: Minhybrid 205.

Open-pollinated varieties: Country Gentleman, Stowell's Evergreen.

Southern and central section:

Early maturing:

Hybrids: Minhybrids 201, 202, 204.

Open-pollinated varieties: Golden Bantam, Crosby.

POP CORN

Minhybrid 250 and Japanese Hull-less.

SOYBEANS

Early maturing: Minsoy, Minn. No. 139; Wisconsin Black, Minn. Acc. No. 164.

Medium maturing: Habaro, Minn. No. 109.

Late maturing: Minnesota-grown Manchu, Minn. Acc. No. 203.

FIELD PEAS

Chancellor, Minn. Acc. No. 235; Chang, Minn. No. 234.

ALFALFA

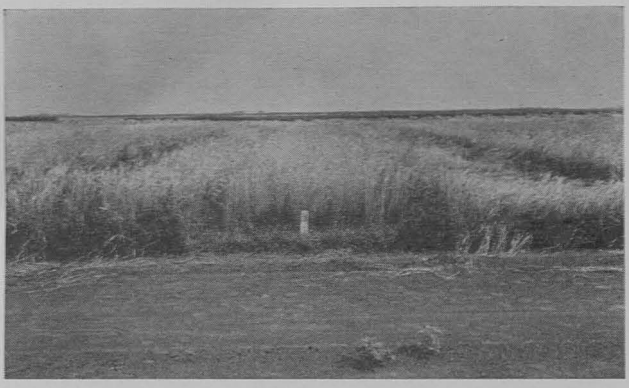
For all sections:

Grimm and Ladak.

CHARACTERISTICS OF RECOMMENDED VARIETIES

SPRING WHEAT

Thatcher, a beardless high yielding variety, matures a few days earlier than Marquis, has a very strong straw, is moderately resistant to stem rust, bunt, and loose smut, but is susceptible to leaf rust and fusarial head blight. It appears to be the equal to Marquis in milling and baking quality. It was produced through cooperation between the Minnesota Agricultural Experiment Station and the United States Department of Agriculture from a double cross of (Marquis x Iumillo) x (Kanred x Marquis).



YIELDS TRIALS IN ONE-FORTIETH-ACRE PLOTS
Thatcher (center plot) proved highly resistant to lodging.

Mindum, a bearded, amber-kerneled durum wheat, has high yielding ability, and is moderately susceptible to stem rust and bunt. It excels in quality of semolina products. It resulted from a durum type selected in a common bread wheat. Mindum is recommended for the Red River Valley.

WINTER WHEAT

Winter wheat, where it can be grown successfully, as in southern Minnesota, is more profitable than spring wheat.

Minturki, a bearded, white-chaffed, stiff-strawed variety of the Turkey type, is early-maturing, yields well, is fairly resistant to stem rust, bunt, loose smut, and fusarial head blight, but is moderately susceptible to leaf rust. It is very winter-hardy, but not so reliable on sandy lands as winter rye. It was produced from a cross of Turkey and Odessa.

OATS

Gopher is early-maturing, open-panicled with white grain, has short, stiff straw and is recommended especially for southern Minnesota, although in certain years its yielding ability has been outstanding in central and northern Minnesota. It is susceptible to crown and stem rusts and moderately susceptible to smuts. It yields well on peat lands, and is recommended for rich, heavy soils, where lodging may occur. It may not grow tall enough to harvest on light or poor soil. Gopher is a selection from a commercial mixture or Sixty Day oats, made for the purpose of obtaining a stiff-strawed, high-yielding variety.

Iogold is early-maturing, open-panicled with yellow grain, has short stiff straw, but lodges more than Gopher on heavy soil, has yielded slightly less than Gopher. It is resistant to stem rust, susceptible to crown rust, and moderately susceptible to the smuts. This variety was produced at the Iowa station by selection from Kherson and is very satisfactory for Southern Minnesota.

Minrus is intermediate between Gopher and Anthony in time of maturity, open-panicled, and is about equal in height and stiffness of straw to Anthony. It is resistant to stem rust, susceptible to crown rust, and moderately susceptible to the smuts. Minrus is preferable to Gopher for growing on light soils in southern Minnesota, and it yields well on peat lands. This variety was produced from a cross of Minota and White Russian.

Rusota, midseason, open-panicled, has white grain, lodges more than Gopher, is resistant to stem rust, and moderately susceptible to crown rust and smuts. It has outyielded other varieties in trials at Crookston. It is a plant selection from Green Russian made at the North Dakota station.

Anthony, midseason, open-panicled, white grain, stiff-strawed, is taller than Gopher, is high in yield and weight per bushel. It is resistant to stem rust, but susceptible to crown rust and smuts. It was produced from a cross of White Russian and Victory, and resembles Victory in plant and kernel characters.

S. D. 165, a hull-less variety, is early-maturing, and in yielding ability compares favorably with the standard hulled varieties. It is resistant to stem rust and smuts but is susceptible to crown rust. It was developed by the South Dakota Experiment Station from a double cross (Markton x Richland) x (Swedish Select x Kilby).

BARLEY

Wisconsin No. 38, a smooth-awned, high-yielding variety of barley, is of acceptable malting quality. It is resistant to spot blotch, moderately resistant to barley stripe, but is susceptible to scab and loose smut. It has yielded more than any other variety in tests conducted in Minnesota during the last five years, except at Grand Rapids where it is exceeded by Peatland. Its greatest weakness is that it lodges badly when seeded on heavy or rich soils. It was produced by the Wisconsin station from a cross of Lion and Oderbrucker.

Velvet, a smooth-awned barley of the Manchuria type, is superior to Manchuria No. 184 in yielding ability and resembles it in general habit of growth. It is susceptible to scab, stripe, and loose smut. Being of desirable malting quality, it is recommended for market production. It resulted from a cross of Luth, a high-yielding variety that is resistant to spot blotch disease, and a smooth-awned selection.

Improved Manchuria has proved the best variety of the Manchuria group in Minnesota. It is a rough-awned variety, resistant to spot blotch, and moderately resistant to loose smut. It is recommended as a desirable malting variety. It lodges more than Velvet. It was developed from an individual plant selection.

Glabron is similar to Velvet in general characteristics but has stronger straw. It is susceptible to scab and loose smut

AN ISOLATED SEED PLOT OF RYE

and is moderately resistant to stripe. It is recommended as a feed barley, being inferior to Velvet in malting quality. It resulted from crossing Smooth-Awn with Manchuria and combines the desirable characters of both parents.

Peatland is a rough-awned variety which is especially well adapted to peat soils, as shown by several years' test. In recent years Peatland has yielded well on mineral soils and is popular in some sections of northern Minnesota. It is resistant to spot blotch, stem rust, loose smut, and moderately resistant to scab, but is susceptible to stripe. It is a selection from the variety called Switzerland.

RYE

Rosen is satisfactory for southern Minnesota when the winters are not too severe. It winter-kills more readily than Dakold. It was introduced from Michigan where it was developed.

Dakold is very winter-hardy; it has yielded somewhat more than Swedish, Minn. No. 2, and has replaced it on the recommended list. It was introduced from North Dakota, where it was developed.

FLAX

Wilt-resistant varieties are essential for successful flax production. If planted in late May or in June, the crop may be damaged by wilt disease; therefore, sowing in April or the first part of May is necessary for the best yields. Seed of wilt- and rust-resistant varieties cannot be distinguished readily from that of susceptible varieties. To be certain that seed is of a wilt-

and rust-resistant variety, it is necessary to procure registered seed from a reliable source. Rust of flax is becoming more prevalent. The growing of rust-resistant varieties should reduce losses from this disease.

Redwing is superior in yield to Bison in southern Minnesota but not in the Red River Valley. It can be distinguished from other varieties grown in the state by its characteristic light blue flowers. It is early in maturity, moderately resistant to wilt, and intermediate in reaction to rust. Seed of Redwing is medium in size, and the oil produced from it is of high quality. It was developed from a plant selected from a variety grown under Acc. No. 91.

Bison is superior in yield to Redwing in the Red River Valley. It has characteristic dark blue flowers and seeds medium large in size. The oil content of the seed averages about two per cent higher than that of Redwing or Buda, but the oil produced dries slowly. It is midlate in maturity, resistant to wilt, but susceptible to rust. It was developed at the North Dakota Experiment Station by plant selection.

Buda is a desirable variety for the Red River Valley but not for other parts of the state. Seeds of Buda are medium-small to small in size, and the oil from them is of good quality. It is midlate in maturity, resistant to wilt, and moderately resistant to rust. It was developed at the North Dakota Experiment Station by selection from a Russian variety.

FIELD CORN

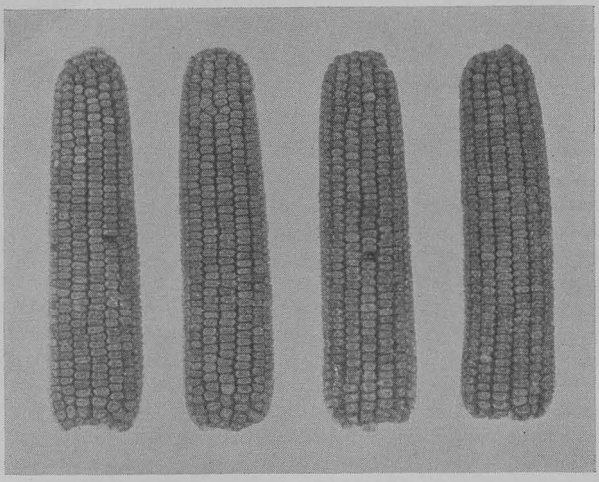
Hybrid corn has increased rapidly in Minnesota. It is quite likely that within the next few years the greater part of the corn acreage in the state will be planted with hybrid seed. In addition to the corn hybrids released by the Minnesota Experiment Station, many hybrids have been developed by commercial seed companies. These commercial seed company hybrids are being compared with station hybrids in the state corn yield trials, but have not been tested for the required length of time to make them eligible for recommendation.

Using seed corn of an adapted strain of any variety is important when mature corn is desired. Seed of different strains of a variety cannot be distinguished by appearance; therefore, it is necessary either to grow the seed or to purchase it from reliable sources. Growing the early strains needed in northern Minnesota in the central part of the state for one year, to make more certain of an adequate seed supply, makes no material difference in the time of maturity of the crop.

Hybrids

Double Crosses, Minhybrid 401 (ExK), Minhybrid 402 (ExI), and Minhybrid 403 (ExZ). Minhybrid 401 is a double cross of mixed seed color adapted to central and south central Minnesota. Minhybrid 402, also of mixed color, is adapted to central and north central Minnesota. Minhybrids 401 and 402 are superior to adapted standard varieties in yield-

ing ability, earliness of maturity, standing ability, and in many cases they give lower smut infection. They have yielded from 10 to 15 per cent more corn per acre, on an average, than farm varieties. E is a first cross of two selfed strains of Minn. No. 13, and I and K are first crosses of selfed strains of Rustler.



COMMERCIAL EARS OF MINHYBRID 301

Minhybrid 403 was released for distribution in the spring of 1937. It is similar in time of maturity to Minhybrid 301 and southern Minnesota varieties. This hybrid has yielded 15 to 20 per cent more than farm varieties of similar maturity, is outstanding in lodging resistance and is superior to standard varieties in smut resistance. This yellow hybrid is made by crossing E with Z, a later maturing single cross between two inbred lines of Reid's Yellow Dent.

Three-way Cross Minhybrid 301 (ExB164). This cross was released for distribution in the spring of 1934. It is similar in time of maturity to Minhybrid 403 and southern Minnesota varieties. It is outstanding in ability to resist lodging, and has yielded 15 to 20 per cent more than farm varieties of similar time of maturity. It is a yellow corn obtained by crossing E with B164, a late-maturing selfed line obtained from an Iowa seed company.

Open-pollinated Varieties

Silver King. Average maturity is about 110 days.* Ears are 16-rowed, cobs white, kernels creamy white with wrinkled dent, moderate depth. Recommended for the most productive soils in southern Minnesota.

Murdock. Habit of growth and maturity are similar to Silver King. Ears are 16-rowed, cobs red, kernels yellow with wrinkled dent. It has the same adaptation as Silver King.

* Average number of days from emergence to well dented stage of maturity.

Golden Jewel is extensively grown in southern Minnesota. It is probably a selection from Murdock or has resulted from a cross of Murdock and Minnesota No. 13. It is very similar to Murdock.

Golden King. Average maturity is about 105 days. It is a smooth yellow dent, cobs red, obtained from William McArthur of Mason City, Iowa. It is recommended for central and southern Minnesota.

Minnesota No. 13 was developed from seed obtained from a firm in St. Paul in 1893. Several strains, each with special regions of adaptation, have been developed through selection. A strain selected by C. H. Lien, formerly of Stearns County, requiring about 105 days to mature, has proved most satisfactory in east and central Minnesota and is now being grown for distribution at the central station. The Morris station strain is several days earlier than the Lien strain and has given favorable results for silage purposes at Grand Rapids. The Morris strain is adapted to west central Minnesota and both strains mentioned are adapted to southern Minnesota, when earlier strains are desirable. Later maturing strains selected by farmers for particular regions of the state are available. The ears of all strains range from 12 to 18 rows, with yellow color, comparatively smooth, with kernels of medium depth and red cob. An early maturing strain of this variety, the Haney strain, developed by J. G. Haney of East Grand Forks, matures in favorable years in northwestern and north central Minnesota.

Rustler is similar to the medium maturing strains of Minn. No. 13 in plant characters and maturity. Ears are white, comparatively smooth, 12- to 16-rowed. Kernels are of medium depth, cobs white. A high-yielding strain has been developed at University Farm.

Northwestern Dent, the Crookston strain, developed at the Crookston station, matures 7 to 10 days earlier than later strains of this variety. It is recommended for northwestern and north central parts of the state. Ears are comparatively smooth, 12- to 14-rowed, kernels not deep, yellow-capped, red dent with considerable variation in shade of color.

Dakota White is a very early flint variety, maturing in 80 to 90 days, with ears borne so low that it is difficult to harvest with a corn binder. Ears have 8 to 10 rows, smooth, white.

Pearl Flint is similar to Dakota White, but ears have 10 to 12 rows with large ear butts which make husking difficult. Ears are borne somewhat higher up than those of Dakota White, which makes harvesting with the binder possible.

Gehu is similar to Dakota White in plant and ear characters. The ears are usually 10- to 12-rowed, and the kernels are yellow.

Rainbow Flint matures in about the same length of time as the Haney strain of Minnesota 13 and is now becoming

widely grown in the northern region. It has yielded very well in trials at the Crookston branch station. Ears are 12- to 14-rowed, slightly longer than Pearl Flint, with kernels variable in color.

SWEET CORN

Hybrids

Sweet corn crosses are valuable for canning purposes and also for use by market gardeners.

Minhybrid 201 is a cross of Golden Bantam inbred lines 77 and 78. In a 6-year trial at University Farm it has yielded 31 per cent more cut corn at canning time, and in a 4-year trial at LeSueur, 56 per cent higher than the Minnesota LeSueur canning strain of Golden Bantam. It is 5 to 6 days later than the standard Bantam, produces many suckers, ears 5 to 7 inches long, which are 8-rowed with rather frequent 10-rowed butts. Kernels are medium size and yellow in color. The quality of the canned product (whole grain pack) is equal to standard Golden Bantam. It is used extensively for canning on the ear.

Minhybrid 202 is a cross of Golden Bantam inbred lines 38 and 42. It has been in trial 6 years and has yielded 25 per cent more cut corn at University Farm and 50 per cent more cut corn at LeSueur than the Minnesota LeSueur strain of Golden Bantam. It is 1 to 2 days earlier than the standard Bantam, is medium suckering, and produces ears 6 to 8 inches long. The ears are 8-rowed, occasionally 10-rowed. Kernels are medium large and yellow in color. This hybrid excels standard Golden Bantam in tenderness and flavor as judged from the canned product (whole grain pack).

Minhybrid 204, a cross of Crosby inbred lines 1 and 5, was approved for distribution in 1937. It is about the same in maturity as the Crosby variety but has yielded 35 per cent more in canning trials. The ears are 14- to 16-rowed, 6 to 8 inches long and uniform in shape. Canning tests have shown that Minhybrid 204 is equal to Crosby in tenderness and slightly superior in flavor and sweetness.

Minhybrid 205, a cross of Country Gentleman lines 220 and 224, was approved for distribution in 1937. It is approximately two days earlier in canning maturity than standard Country Gentleman, has given an increased yield of 63 per cent, suckers less, and is far superior in standing ability. Ears are irregular-rowed, 6 to 8 inches long. The quality of the canned corn is no better than the standard variety.

Open-pollinated Varieties

Golden Bantam is grown in many parts of the United States and has long been recognized as a high-quality sweet corn. Many strains ranging from early market garden to later canning types have been developed. Ears are golden yellow, 5 to 7 inches long, mostly 8-rowed.

Crosby, more commonly grown in Minnesota for canning than for home or market garden, is somewhat later than Golden Bantam. Ears are white, 6 to 8 inches long, 12- to 16-rowed.

Country Gentleman is one of the leading late sweet corn varieties in southern Minnesota. Ears are white, 7 to 9 inches long. Kernels are irregularly distributed on the cob.

Stowell's Evergreen is a leading late-maturing variety suitable for southern Minnesota. Ears are white, 7 to 9 inches long, 16- to 18-rowed.

POP CORN

Minhybrid 250 is a cross of Japanese Hull-less inbred lines 1 and 6. In trials at University Farm it has yielded 16 per cent more ear corn than standard Japanese Hull-less, has given 29 per cent greater popping volume, is somewhat earlier in time of maturity, and somewhat less susceptible to smut. Ears are white, 3 to 4 inches long, and uniformly cylindrical in shape.

Japanese Hull-less is one of the best standard varieties from the standpoint of tenderness and flavor. Ears are white, 3 to 4 inches long, and often have flattened, wide tips. This variety is adapted throughout central and southern Minnesota.

SOYBEANS

Habaro matures in 105 to 110 days, is very upright and leafy, with an average height of 30 to 35 inches. Seeds are light yellow and are larger than those of Manchu. It is a desirable seed and forage variety for central and southern Minnesota. It was developed from a selection made at University Farm.

Minnesota Grown Manchu matures a few days later than Habaro and is erect and leafy. Seeds are round, yellow with black and brown hilums. Earlier in maturity than Manchu grown farther south. Desirable for southern Minnesota.

Wisconsin Black matures in 80 to 90 days, height 28 to 30 inches. Seeds are medium size and black. It is recommended for seed and hay production in northern Minnesota.

Minsoy matures in 80 to 90 days, height 22 to 25 inches. It is fine stemmed, leafy, and retains leaves at maturity; high yielder; pods non-shattering; seeds small, light yellow, with brown hilums. It is recommended as a seed and hay crop in northern Minnesota and was developed from a selection made at University Farm.

FIELD PEAS

Chancellor is a tall, white-flowered variety with short, narrow, curved pods well filled with small, round, yellow seeds. It is midseason in maturity, usually a week earlier than Chang and 10 days earlier than Golden Vine, a variety formerly recom-

mended. It is high in yield of seed and forage. It was developed by selection at the Dominion Experimental Farms, Ottawa, Canada.

Chang is a tall, white-flowered variety, with curved pods of medium length and width. The seeds are yellow, medium in size, round with black hilums (eyes). The edges of the leaves of the seedlings are serrate (toothed). It is high in yield of seed and forage. It is a pure-line selection made at University Farm from a small lot of seed bearing the same variety name, brought in from China by the United States Department of Agriculture.

ALFALFA

Grimm, a winter-hardy variety developed in Carver County, is recommended for all parts of the state. It is susceptible to wilt.

Ladak is a winter-hardy variety introduced from northern India by the United States Department of Agriculture. It has yielded as high as Grimm and has the advantage of being fairly resistant to alfalfa wilt.

VARIETIES NOT CONSIDERED DESIRABLE FOR MINNESOTA

This list includes:

(a) Improved varieties that after adequate test have been found less desirable than those in the recommended list.
(b) Improved varieties that have not been tested long enough to be recommended.
(c) Other much advertised varieties.

SPRING WHEAT

New Variety of Possible Value But Not Sufficiently Tested

Rival is a high-yielding, bearded spring wheat moderately resistant to stem rust and leaf rust but has rather weak straw. It appears satisfactory in milling and baking qualities. It is the result of a Ceres x (Hope-Florence) cross made at the North Dakota Experiment Station.

Varieties Not Recommended

Renown is resistant to stem rust with more resistance to leaf rust than Thatcher. Ordinarily it yields less than Thatcher, but under conditions of heavy leaf rust it has yielded higher. It is higher in bushel weight, of better kernel appearance, but has a lower loaf volume and more yellow color when milled than Thatcher. The variety was developed from a cross of H-44 x Reward by the Canadian Rust Research Laboratory.

Apex is stem-rust resistant but low in yield and moderately susceptible to leaf rust. It is not so satisfactory in milling and baking characteristics as Thatcher. It was developed from a cross of (Double Cross x H-44) x Marquis at Saskatoon, Canada.

Pilot yields slightly less than Thatcher, is resistant to stem rust, and moderately resistant to leaf rust. Its milling and baking characteristics are about equal to those of Thatcher. Pilot has very weak straw. It is a selection from a Hope x Ceres cross, made by the United States Department of Agriculture.

Nordhaugen is resistant to stem rust but susceptible to leaf rust. It yields about as well as Thatcher but is lower in bushel weight. While it has a high flour-yielding capacity, it produces a softer flour of lower loaf volume than a normal hard spring wheat. It was developed by Mr. Nordhaugen, a farmer of Leeds, North Dakota. Its origin is unknown.

Coronation is resistant to stem rust and leaf rust, but it was not satisfactory in baking qualities, as it was low in loaf volume and in color, grain and texture of loaf. It is the result of a Pentad (red durum) x Marquis cross and originated from the Canadian experiment station at Morden, Canada. In Canada it is not considered equal to Marquis and is not eligible to grade higher than No. 3 Manitoba Northern.

Great Northern was tested at Crookston in 1938 and was such a mixture of types that it can not be recommended.

Ceres, a bearded variety, has somewhat weaker straw than Marquis, and is about the equal to it in milling and baking qualities. It is moderately susceptible to stem rust and fusarial head blight, but susceptible to leaf rust, bunt, and loose smut.

Garnet is very early, is susceptible to stem rust, and produces flour so yellow that it is difficult to bleach. It lodges easily.

Hope, a variety developed by E. S. McFadden of Webster, South Dakota, from a cross between Marquis and Emmer, is highly resistant to rusts and smuts but is susceptible to black chaff. It has a tendency to develop weak straw, threshes with difficulty, and has not proved a high yielder in Minnesota.

Komar resembles Ceres and was obtained from the same cross. It is recommended by the Iowa station.

Marquillo is a high-yielding variety, resistant to stem rust. It yields flour with a shade of yellow color when milled.

Marquis is an old established variety, has desirable milling and baking qualities, but is very susceptible to black stem rust.

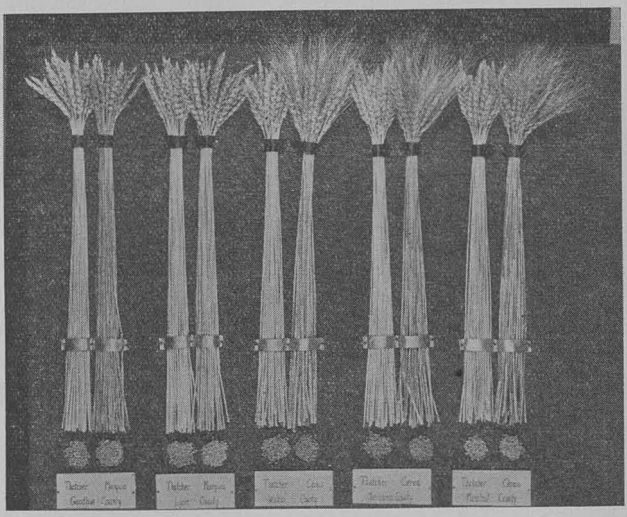
Progress is a high-yielding variety, semi-resistant to stem rust, developed at the Wisconsin station from a plant selection from Java. It produces softer grain considerably lower in milling value than the recommended varieties and is suitable only for poultry feed. It should not be grown where wheat is produced for milling purposes. It has yielded well in northern Minnesota.

Reward is one of the most desirable early-maturing wheats, has good milling and baking quality, yields less than

Marquis, and is susceptible to stem rust and to smuts. It is a very suitable variety to sow with early oats as a succotash crop.

Ruby is early, yields less than Marquis, and is susceptible to stem rust. It is more variable in baking quality than Marquis.

Acme (durum) is resistant to stem rust but yields less than Mindum. The kernels are amber-colored. It is less desirable for the manufacture of macaroni products than Mindum.



THATCHER COMPARED WITH MARQUIS AND CERES IN FARM DEMONSTRATIONS IN 1935

Rust on Stems of Marquis and Ceres.

Kubanka (durum) yields less than Mindum, lodges more severely, has amber-colored kernels, and is desirable for macaroni products.

Pentad (durum) is very resistant to stem rust, yields less than Mindum, and the kernels are red. It is undesirable for the manufacture of macaroni products.

WINTER WHEAT

Iobred produces a high-quality grain but is less winter-hardy than Minturki and yields less.

Iowin was developed by the Iowa Experiment Station and is not so winter-hardy as Minturki.

Kanred is not so winter-hardy as Minturki and has weaker straw.

Minhardi is a beardless variety, more winter-hardy and stiffer-strawed than Minturki, but more susceptible to stem rust and stinking smut. It is less widely adapted than Minturki. The grain is somewhat less desirable in quality than that of Minturki.

OATS

Albion, known as Iowa 103, is early, white in color, and yields less, as a rule, than Iogold and Gopher.

Iowar is early, white, weaker-strawed, and yields less than Gopher except on peat land.

Kherson is a mixture of yellow and white oats, early, susceptible to rust, and yields less than Gopher.

Liberty Hull-less is midseason in maturity and threshes out naked. It yields less than S. D. 165 and is very susceptible to smuts and stem rust.

Little Yellow is an early yellow variety yielding less than Gopher.

Rainbow is a selection from Green Russian made at the North Dakota station. It is less desirable than Rusota.

Richland, or **Iowa 105,** is an early, yellow variety with stiff straw, resistant to stem rust. It yields less than Gopher.

Silvermine is a midseason, white oat, yields less than Victory, and is susceptible to stem rust.

Swedish Select is a late, white variety, yields less than Anthony or Minrus, and is susceptible to stem rust.

Victory is a midseason, white oat, yields less than Anthony, and is susceptible to stem rust.

White Tartar is a late, white, side oat, yields less than Victory, and is resistant to stem rust.

BARLEY

Minsturdi is a 6-rowed, rough-awned, stiff-strawed variety, and is susceptible to barley stripe.

Trebi is a high-yielding, 6-rowed, rough-awned variety with very poor malting quality.

RYE

Prolific Spring, a spring variety, yields well at University Farm, the only station where it has been tested for several years.

FLAX

Minota yields somewhat less than recommended varieties. The seeds are smaller than Redwing.

B. Golden has pink flowers and produces large, yellow seeds. It is moderately resistant to wilt and rust. This variety is too short-strawed to be generally satisfactory as a farm variety.

UNIVERSITY FARM, ST. PAUL, MINNESOTA

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